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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,771	01/08/2002	Matthew Boyd	7373/72556	6313

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/038,771	Applicant(s) BOYD ET AL.	
	Examiner Justin R. Fischer	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-14,16-20,22,23,25-29,40,41,44,46 and 47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-14,16-20,22,23,25-29,40,41,44,46 and 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11706</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 7-10, 12-14, 20, 22, 23, and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barron (US 6,030,575, of record) and further in view of Kelman (US 5,413,750, of record), Burelle (US 3,660,184, of record), and Smith (US 4,673,594, of record). The references are applied in the same manner as set forth in the Non-Final Rejection mailed on December 5, 2005.

Barron discloses a method of making a preform comprising providing a stream of chopped fibers, providing a stream of binder material, mixing the respective streams to define a mixture, heating said mixture from a heat source external to the mixture, applying said mixture to a screen, and finally curing/solidifying and shaping said mixture to form the preform (Column 3, Lines 1-20, Column 6, Lines 26-44, Column 7, Lines 50-60, Column 8, Lines 50-60, and Column 10, Lines 3-10). The reference, however, is silent as to the inclusion of a "solid" support surface. It is known, though, to include a support surface in such a method in order to provide increased strength and integrity to the preform, as shown for example by Kelman (Column 1, Lines 30-35 and 40-45). While Kelman only discloses the use of a glass fabric material as a support surface, there are a wide variety of additional constructions, including "solid" support surfaces,

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that are commonly used in similar methods of forming fibrous preforms or structures, as shown for example by Burelle (Column 1, Lines 25-35 and Column 2, Lines 30-40) and Smith (Column 5, Lines 39-50). It is particularly noted that the perforated sheet described by Burelle appears to be analogous to the support surface of the claimed invention (perforated sheet is seen to constitute a "solid" surface in view of dependent claim 23) and furthermore, it is consistent with the teachings of Kelman in that it contains some degree of porosity. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a "solid" support surface in the method of Barron for the reasons detailed above.

Regarding claim 4, the mixture of Barron is sprayed against a support surface.

As to claim 7, the reinforcing material of Barron is in the form of chopped fibers (Column 5, Lines 35-40).

With respect to claim 8, the binder of Barron is described as "particulate" (Column 5, Lines 20-25).

Regarding claims 1, 9 and 10, the method of Barron suggests that the binder is initially heated or conditioned prior to contact with the chopped fibers (Column 6, Lines 25-40). In regards to the heating, it is noted that such a disclosure does not exclude heating the binder prior to and during contact with the fibers, as is required by the claim. In fact, Barron specifically states "it is necessary to heat from ambient or approximately ambient to 200 °C., beginning at approximately the time of contact between the binder and the fibers" (Column 7, Lines 50-60). The reference further teaches that the binder

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and fibers are in contact under the controlled heat conditions (Column 8, Lines 50-55). Thus, it appears that the method of Barron involves conditioning or heating the binder prior to and during contact with the fibers. It is further emphasized that a critical step of Barron involves maintaining a desired viscosity (which is a function of the heating conditions) of the binder before and during contact with the fibers (Column 7, Lines 5-10).

With respect to Claim 12, the respective streams are combined prior to contact with the surface.

As to claims 13 and 14, the binder can be conditioned or heated prior to the stream of material being formed (Column 6, Lines 45-50).

Regarding claim 20, it is well recognized that the methods of Barron are applicable to vertical surfaces- one example of such a method is disclosed by Kelman.

With respect to claim 22, the surface of Barron is maintained at ambient air conditions (Column 7, Lines 45-50).

As to claim 23, as noted above, one of ordinary skill in the art at the time of the invention would have found it obvious to use a perforated sheet as the "solid" support surface in Barron.

Regarding claim 25, the method of Barron involves a cooling step (Column 8, Lines 55-62).

With respect to claim 26, the preform of Barron is described as being arranged within a mold and included in a RTM or SRIM process (Column 10, Lines 3-15).

Regarding claims 27-29, it is well recognized that vacuum is included in such methods in order to suck the resin into the mold cavity.

3. Claims 2, 3, 5, 16-19, 40, 41, 44, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barron, Kelman, Burelle, and Smith as applied in the previous paragraph and further in view of either one of Hedman (GB 2,015,915, of record) or Johnson (US 4,762,740, of record). The references are applied in the same manner as set forth in the Non-Final Rejection mailed on December 5, 2005.

While the method of Barron suggests the use of a vacuum/plenum system, it is well recognized that such methods involving the application of streams of binder and fibers can be carried out in the absence of vacuum/plenum system- such a step is recognized as being optional, as shown by Johnson (Column 3, Lines 40-50) and Hedman (Page 2, Lines 35-45). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to practice the method of Barron in the absence of vacuum/plenum system as such a method (without vacuum/plenum system) is consistent with the common methods used in the manufacture of fibrous preforms.

Regarding claim 6, the fibers of Barron can be glass fibers (Column 5, Lines 55-60).

As to claim 19, Barron suggests the use of a flame to form a heat zone (Column 6, Lines 35-40).

Response to Arguments

4. Applicant's arguments filed March 6, 2006 have been fully considered but they are not persuasive. Applicant argues that Barron discloses "only heating the binder material only which is then dispersed onto the reinforcing fibers". Applicant additionally argues that Barron teaches that it is desirable to heat or melt the binder prior to the binder material contacting the fibers.

It is initially noted that it is agreed that a preferable embodiment of Barron involves heating the binder prior to contact with the fibers. However, such an embodiment does not exclude additional heating after the binder and fiber are contacted and such an embodiment is not excluded by the claims as currently drafted. Additionally, as detailed in the rejection above, Barron specifically states, "it is necessary to heat from ambient or approximately ambient to about 200 degrees Celsius, beginning at approximately the time of contact between the binder and the fibers". This language clearly suggests that heat from an external source is applied to binder once it contacts the fibers and thus constitutes a mixture. A key feature of Barron is the ability to reach a maximum temperature ("ramp up") and thus a minimum viscosity and subsequently reduce the temperature such that the binder reaches a solid state. The language cited above teaches that the "ramp up" can be achieved by heating the binder before and during contact with the binder. It is emphasized that the "ramp up" is disclosed as beginning at approximately the time of the contact between the binder and the fibers- clearly, the "ramp up" is present after the materials are in contact and thus define a mixture.

In regards to the resolidification, Barron suggests that the binder reaches such a state once the binder and fibers have been in contact under the controlled heat conditions. This teaching does not exclude the application of heat to the mixture but rather suggests that after the mixture (particularly the binder) is at a desired temperature for a desired amount of time (controlled conditions), the binder reaches resolidification and heat is withdrawn from the binder by the fibers (acts as a heat sink).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin Fischer

May 5, 2006